# UNITED STATES PATENT AND TRADEMARK OFFICE

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/885,448 | 06/19/2001 | Kenneth J. Hines | 10488/11:1 | 2736 |

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| 7590      05/06/2005 | EXAMINER |
| MICHAEL R. BARRE | ROCHE, TRENTON J |
| BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2193 | |

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DATE MAILED: 05/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

| Office Action Summary | Application No. | Applicant(s) |
|---|---|---|
| | 09/885,448 | HINES, KENNETH J. |
| | **Examiner** | **Art Unit** | |
| | Trent J. Roche | 2193 | |

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on <u>13 January 2005</u>.

2a)☒ This action is **FINAL**.          2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) <u>1-5,18-20 and 31-38</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-5, 18-20 and 31-38</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>19 February 2002</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>09162004, 10122004, 01102005</u>.

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

# DETAILED ACTION

1.      This office action is responsive to communications filed 13 January 2005.

2.      Per applicant's request, amended claims 1, 5 and 18 have been entered. Claims 6, 7 and 21-

23 are canceled. Newly added claims 31-38 have been entered. Claims 1-5, 18-20 and 31-38 are now

pending.

3.      Claims 1-5, 18-20 and 31-38 have been examined.


*Election/Restrictions*

4.      Restriction to one of the following inventions is required under 35 U.S.C. 121:

     I.      Claims 1-7 and 8-23, drawn to a method and system of using a debugger in a

        simulator, classified in class 717, subclass 135.

     II.     Claims 8-12, drawn to a method for transforming a visual prototype into a behavioral

        expression, classified in class 717, subclass 109.

     III.    Claims 13-17 and 24-30, drawn to a method and tool for analyzing system events,

        classified in class 717, subclass 156.

The inventions are distinct, each from the other because of the following reasons:


5.      Inventions I and II are related as combination and subcombination. Inventions in this

relationship are distinct if it can be shown that (1) the combination as claimed does not require the

particulars of the subcombination as claimed for patentability, and (2) that the subcombination has

utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as

claimed does not require the particulars of the subcombination as claimed because the claims in

invention I merely discuss the act of using a debugger in a software system simulation to create and

identify certain predetermined behavior, and do not discuss any aspects regarding the creation of a visual prototype to represent predetermined behaviors. The subcombination has separate utility such as outlining the details involved in creating a behavioral expression from a visual prototype, which would not include the various steps outlined in invention I.

6.      Inventions II and III are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, invention III has separate utility such as analyzing system events and creating a dependency graph to represent the system events, and does not perform the steps of creating a behavioral expression from a visual prototype. See MPEP § 806.05(d).

7.      Applicant's election without traverse of Group I, claims 1-7 and 18-23 in the reply filed on 13 January 2005 is acknowledged.

## Claim Rejections - 35 USC § 102

8.      The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9.      Claims 1-7 and 18-23 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 4,965,743 to Malin et al, hereafter referred to as Malin.

**Per claim 1:**

Malin discloses:

- generating a record of software system events, each event record within the record of system

    events representing an inter-component control or dataflow interaction ("The results of the

    simulation can either be permanently recorded in a log file or debug text..." in col. 13 lines

    34-36)

- creating a behavioral template based on a predetermined behavior of the software system

    ("the library designer is able to create the knowledge representation information that is

    needed for the creation of models and the simulation of such models" in col. 15 lines 44-47)

- wherein the predetermined behavior comprises a predetermined set of state changes selected

    from an execution of the software system, wherein the predetermined set of state changes

    represent coherent units of behavior by the system software ("Discrete event modeling and

    simulation is characterized by state changes in a system's entities, 'events', that occur..." in

    col. 4 lines 14-16. Further, note Figure 15 and the corresponding sections of the disclosure.

    "the method Run [model] in which the discrete event simulator runs the model by executing

    events on the event queue until the queue is empty" in col. 25 lines 17-19. The events are

    predetermined state changes, as there is a predetermination concerning placing events in the

    queue, which further represent coherent units of behavior by the software system, as an

    event is indicative of some action or behavior by the system.)

- identifying an occurrence of the predetermined behavior within the record of software

    system events, based on the behavioral template ("Additional analysis is obtained by

    comparison of log files to specify the differences in outcomes..." in col. 10 lines 52-53)

substantially as claimed.

**Per claim 2:**

The rejection of claim 1 is incorporated, and further, Malin discloses creating the behavioral

template comprises creating a visual prototype, which represents the predetermined behavior of the

software system as claimed ("This module allows the model builder to construct a model

graphically..." in col. 24 lines 58-59)


**Per claim 3:**

The rejection of claim 1 is incorporated, and further, Malin discloses creating a behavior expression,

which represents the predetermined behavior of the software system as claimed ("Statements are

associated with processes...They are written in terms of the operators, component variables

inherited from the VCs, and the values of the valueclasses defined in the language" in col. 24 lines

26-30)


**Per claim 4:**

The rejection of claim 1 is incorporated, and further, Malin discloses simulating an execution of the

software system, with the record of software system events generated by the simulator as claimed

("The results of the simulation can either be permanently recorded in a log file or debug text..." in

col. 13 lines 34-36)


**Per claim 5**

The rejection of claim 1 is incorporated, and further, Malin discloses instrumenting the software

system to provide an event notification to a runtime operating system for each software system

event, and deploying the software system to a target architecture, and capturing all notifications

from the software system and storing the event notifications to create a record of software system

events as claimed (Note Figure 1, item 132.1. To perform a trace of the system, and for the Log file

to have been created, the system inherently had instrumentation to provide event notification so that

the events could be recorded. Further, the simulation is inherently running on a target architecture.)


**Per claim 18:**

Malin discloses:

-   a software system design tool ("A specialized qualitative modeling and secrete event

    simulation tool..." in col. 10 lines 3-4)

-   a simulator for simulating an execution of the software system (Note Figure 1, item 13 and

    the corresponding section of the disclosure)

-   a template tool for creating a behavioral template based on a predetermined behavior of the

    software system ("the library designer is able to create the knowledge representation

    information that is needed for the creation of models and the simulation of such models" in

    col. 15 lines 44-47)

-   wherein the predetermined behavior comprises a predetermined set of state changes selected

    from an execution of the software system, wherein the predetermined set of state changes

    represent coherent units of behavior by the system software ("Discrete event modeling and

    simulation is characterized by state changes in a system's entities, 'events', that occur..." in

    col. 4 lines 14-16. Further, note Figure 15 and the corresponding sections of the disclosure.

    "the method Run [model] in which the discrete event simulator runs the model by executing

    events on the event queue until the queue is empty" in col. 25 lines 17-19. The events are

    predetermined state changes, as there is a predetermination concerning placing events in the

queue, which further represent coherent units of behavior by the software system, as an

event is indicative of some action or behavior by the system.)

- a debugging tool for identifying an instance of the predetermined behavior of the software

system from a simulated execution of the software system based on the behavioral template

("Additional analysis is obtained by comparison of log files to specify the differences in

outcomes..." in col. 10 lines 52-53. Further, "the debug facility allows the user to turn debug

on or off..." in col. 29 lines 8-9)

substantially as claimed.

**Per claim 19:**

The rejection of claim 18 is incorporated, and further, note the rejection regarding claim 2.

**Per claim 20:**

The rejection of claim 18 is incorporated, and further, note the rejection regarding claim 3.

**Per claims 31-35:**

The limitations recited in claims 31-35 are substantially similar to those recited in claims 1-5,

respectively, and as such, are rejected for the reasons set forth in connection with claims 1-5,

respectively.

**Per claims 36-38:**

The limitations recited in claims 36-38 are substantially similar to those recited in claims 18-20,

respectively, and as such, are rejected for the reasons set forth in connection with claims 18-20,

respectively.


### *Response to Arguments*

10.     Applicant's arguments filed 13 January 2005 have been fully considered but they are not

persuasive.


**Per claims 1-5 and 18-20:**

The applicant states that Malin does not appear to teach or suggest a predetermined set of state

changes representing coherent units of behavior by the system software. In response, the prior

office action indicated that state changes in a system are represented by events, and as further noted

in the above rejection, these events, which are indicative of some action or behavior by the system,

are predetermined to be placed on a queue, and then executed for purposes of identifying

occurrences of predetermined behavior. As such, the Examiner submits that Malin does disclose the

required limitations. The rejection of claims 1-5 and 18-20 are proper and maintained.


**Per claims 31-38:**

The applicant states that Malin does not teach or suggest the similar feature of a predetermined set

of message events representing coherent units of behavior by the system software. As was noted

above, the Examiner submits that Malin does disclose the required limitations of newly added claims

31-38.

## *Conclusion*

11.    **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS

from the mailing date of this action.  In the event a first reply is filed within TWO MONTHS of the

mailing date of this final action and the advisory action is not mailed until after the end of the

THREE-MONTH shortened statutory period, then the shortened statutory period will expire on

the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be

calculated from the mailing date of the advisory action.  In no event, however, will the statutory

period for reply expire later than SIX MONTHS from the mailing date of this final action.

12.    Any inquiry concerning this communication or earlier communications from the examiner

should be directed to Trent J. Roche whose telephone number is (571) 272-3733.  The examiner can

normally be reached on Monday - Friday, 9:00 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor,

Kakali Chaki can be reached on (571) 272-3719.  The fax phone number for the organization where

this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system.  Status information for published applications

may be obtained from either Private PAIR or Public PAIR.  Status information for unpublished

applications is available through Private PAIR only.  For more information about the PAIR system,

see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system,

contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Trent J Roche
Examiner
Art Unit 2193

TJR

TODD INGBERG
PRIMARY EXAMINER